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ABSTRACT

The report examines the state of the art in personpower planning for developmental disabilities (DD) services. Part 1 is a review of the literature concerning personnel in the following fields: special educators, nurses, physicians, dentists, therapists, social workers, vocational rehabilitation counselors, speech pathologists/audiologists, dieticians/nutritionists, and ancillary personnel. Part 2 is an investigation of current projects or research in the field. In part 3 conclusions and recommendations for the future are presented, including developing strategies for improving personpower distribution, upgrading career roles of direct care staff, increasing cooperation between University Affiliated Facilities and state agencies, increasing accessibility of quantitative data related to DD job classifications, improving research methodology for personpower projection, and establishing a national network of cooperative personpower planners. A bibliography, including selected annotations is provided. (Author/PHR)

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PERSONPOWER PLANNING: IMPLICATIONS FOR THE DEVELOPMENTAL DISABILITIES SERVICE SYSTEM

Prepared by

Technical Assistance in Training
Developmental Disabilities Personnel Project

Institute for the Study of Mental Retardation
and Related Disabilities

University of Michigan
Ann Arbor, Michigan

Sponsored by

Developmental Disabilities Office
Office of Human Development Services, Region V
U.S. Department of Health, Education, and Welfare

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PREFACE

This report has been prepared by the Technical Assistance in Training Developmental Disabilities Personnel Project as part of its technical assistance to state Developmental Disabilities Planning Councils. The project was established to assist the planning groups and service agencies in the states of Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin through the provision of technical assistance services, including: 1) assessment of the training needs of personnel serving developmentally disabled individuals; 2) consultation in the development of training programs to meet the identified training needs; and 3) identification and utilization of training resources, including materials, programs, and funds. The project works with the state Developmental Disabilities Planning Councils and staff and, through them, with state agencies serving developmentally disabled persons.

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A previous document, Funding for Training: A Survey of Resources to Financially Support Staff Development Programs for Developmental Disabilities Personnel, was also prepared under the auspices of this project.

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This document is the sum total of many research parts. The initial data was compiled by Bruce Newton, M.S.W., Project Research Assistant. Editorial assistance were provided by Christopher Murphy, M.Ed., Project Manager, while final research and writing was completed by Bennett Berman, Ed.D., Project Associate.

Space does not allow the acknowledgment of the many others who supplied valuable information and made suggestions which were incorporated in the final product.

E. Eugene Handley, Ph.D.
Project Director

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INTRODUCTION

It has been said that the social growth of a society may be measured by the use it makes of its resources to help its less fortunate citizens (Titmuss, 1968). Implementation of human services requires tremendous resources. The most important of these are the people to do the work--personpower.

During the past quarter century, America's population increased 33-1/3%. For the 1970's, the estimated growth of the American work force is 20%, but health care and related provider systems personpower needs are projected to be even greater (Ginzberg, 1972).

In addition to increased pressures on the provider system from an expanded population, legislative mandates within the past two decades have directed the health care system to increase services to a special segment of our society, the developmentally disabled (DD) population, defined by the federal government to include persons with mental retardation, cerebral palsy, epilepsy, autism, and dyslexia (Martin, 1968; Cohen, 1978). Adequate personpower to meet the needs of the developmentally disabled population during the 1970's was viewed as one of the most serious problems confronting the national provider system by the Canadian-United States Joint Study Group on Mental Retardation (Cohen, 1970).

The Importance of Personpower Planning

For the purpose of this Project report, "personpower" (formerly manpower) is defined as the labor resource of people whether volunteers, paraprofessionals or professionals with appropriate skills and abilities to perform services for developmentally disabled clients of any age, from birth to death.

Forecasting the need for and availability of personpower on a time continuum is the essence of building any effective provider system for human services. The function of personpower planning is to avoid gaps in the allocation and distribution of personnel which effect delivery of client services. Government agencies impacting on the human condition find they are unable to plan for needed services without knowing what numbers and kinds of personnel are required as well as the best ways to utilize the personpower (Lewis, 1974). Franke and Sobel (1970) have stressed that knowledge of occupational surpluses, like knowledge of occupational shortages, is critical to protecting the economic health of a provider system. Hard data and intelligent prognostication from trend statistics is vital to anticipating shifts and changes in occupational structures (Comptroller General of the United States, 1976). At the Whitehouse Conference on Handicapped Individuals, Stedman (1977) reported that no current or proposed service system can operate for long without the manpower necessary to deliver and evaluate the service.

For administrators, planners and educators within the health care education and social service professions that comprise the provider system for developmentally disabled citizens, personpower planning assumes even greater importance.

Purpose and Organization

The purpose of this report is to examine the "state of the art" in personpower planning for developmental disabilities services. This task was divided into three phases: I) a review of the literature; II) an investigation of current projects or research in the field; and III) conclusions and recommendations for the future based on the data identified by the investigation.

The Bibliography at the conclusion of this report is divided into two parts: 1) References, which contain the listing of supportive documents for the text; and 2) Selected Annotations, which include brief descriptive paragraphs of some of the more important reference materials related to personpower planning in three categories—general issues, projections, and planning models.

I

DD PERSONPOWER PLANNING: SURVEY OF THE LITERATURE

Although a survey of the literature identified a number of personpower studies with statistical data for the health care system (Pennel & Hoover, 1970; National Commission for Manpower Policy, 1976; Rosenstien & Taube, 1976), none were located which statistically reflected with any depth of analysis the specific personpower needs and resources of the provider services for the developmentally disabled clients. Forecasts which attempted to encompass the issues of personpower projections for this special group relied in general on philosophical hypotheses or educated "guess-timates" by authorities in the field (Pennsylvania DD Center, 1973; Beauregard & Indik, 1976).

For example, Mayo (1970) estimated the number of institution attendants should be doubled to improve client service and Tarjan (1977) advocated for a greater number of trained personnel in DD habilitation programs to implement the deinstitutionalization process. The Pennsylvania Developmental Disabilities Center, in association with Temple University (1973), undertook the examination of DD-related personpower projections through 1980. They chose to approach their subject from the service viewpoint and reported their anticipation of increased need for providing human resources to work with DD clients in such areas as aging, advocacy, vocational education, etc. Beauregard and Indik (1976) present data in the form of historical descriptions plus an evaluation of bibliographic references to handicapped personpower problems.

The Developmental Disabilities Office, Office of Human Development Services, H.E.W. (1978) reports that, at present, an established system for personpower planning does not exist. Quantitative studies of staffing needs, current or future, in the developmental disabilities service system have not been completed. While some isolated examples of research in personpower planning were conducted by cities and states (Santa Cruz County Superintendents, 1972; University of North Carolina, 1974; Beauregard and Indik, 1978; DD Task Force of the Metropolitan Health Board, 1977), the most extensive personpower planning in the literature related to DD services was found to be job-related within specific disciplines. With the exception of special educators, none of the reports which follow describe personpower needs specific to the field of developmental disabilities. They are presented, instead as reports of the status of personpower in a number of professions which provide critical service to developmentally disabled citizens and their families.

Special Educators: Certified Teachers

In 1968 the President's Commission on Mental Retardation (PCMR) reported a serious shortage of trained educators to work with the mentally retarded. Today, recent personpower studies in education suggest the special education teacher shortage has been resolved, especially at the elementary grade level. A major recruiting effort by higher education institutions, as well as expanded preservice and in-service training programs, has to a great extent met the "numbers" challenge. Critical personpower shortages remain, however, in service to the more difficult to serve student, such as the pre-school handicapped, the severely disabled child (Balow, 1971; Schofer, 1976) and the disabled high school student (Clark & Oliverson, 1973).

In some geographic areas, there is a proliferation of training programs, some of which duplicate other efforts, while in other locations the training is sparse. Qualified special educators entering the job market tend to cluster in the larger markets and are not available for employment in rural areas. In general, the literature tends to call for the establishment of a nation-wide, cooperative personpower planning program in special education. This program would coordinate training activities, match training goals with service priorities, encourage more equitable personnel distribution, as well as collect quantitative and qualitative data about preparation of personnel (Bensberg, 1966; Mintz and others, 1970; Clark & Oliverson, 1973; Schofer and McGough, 1976).

Special Educators: Paraprofessionals

The paraprofessional educator, under a variety of job titles from Teacher Aide to Special Education Assistant, has become a critical partner in the classroom, especially in the larger urban markets. In 1974, 27,000 paraprofessionals were identified as public education employees (National Careers Training Laboratory, 1974). By 1977 their numbers had swelled to 46,000, an increase of nearly 70% in only a few years! (Pickett, Survey of State Directors of Special Education, 1977)

In 1977, twelve states required certification of paraprofessionals in the classroom and twenty other states expressed interest in establishing some form of certification or licensing (Ibid., p. 7). The training system to provide paraprofessional personpower has grown to 69 higher education institutions who offer preservice programs of one to two years. Currently, there are 3,354 students enrolled in

these programs, 3 out of every 4 of whom are paying their own tuition without federal assistance (Pickett, Survey of State Directors of Special Education, 1977).

A majority of the paraprofessionals are being drawn from minority groups (female, black, low income) and the prognosis for an increased demand for educated paraprofessionals by many school systems is excellent (Carter, 1976). But are we approaching the limits of need for staff in this area or already exceeding it? Accurate personpower projections are lacking.

Nurses

Nursing has played a critical role historically in service to developmentally disabled persons, specifically those institutionalized or with related health impairments, while data related to the need for nurses in the field of developmental disabilities is not available, a status report on the general field of nursing should be of interest.

Early in 1970, authorities in personpower planning were forecasting a shortage of trained nurses through the 1980's, especially in the practical nurse classification (Pennel & Hoover, 1970; Yett, 1970). Although the nursing profession has increased its ranks by 36% over the late '60's, a shortage of 20% or more is still reported in the health care literature (Pennel & Hoover, 1970; United States Department of Health, Education and Welfare, Health Resources Administration, 1974; National Commission for Manpower Policy, 1976).

The National Commission for Manpower Policy (1976) confirmed the initial forecast of Pennel & Hoover (1970). The 1970 study projected a requirement by 1975 of 816,000 registered nurses and 546,000

licensed practical nurses (Pennel & Hoover, 1970, p. 24). In the 1976 report, the estimated number of employed registered nurses was 815,000, but the total number of practical nurses was only 459,000 (National Commission for Manpower Policy, 1976, p. 28). The explosion in population health care service needs, and rapidly changing service technology, have fostered the desire for an effective continuing education program for nursing aides, PN's and RN's, but compound personpower shortage problems because of need for release time and schedule juggling (Project Continuing Education for Health Manpower, 1974).

Physicians

In 1974, there were 15,946 first year medical students enrolled and 14,999 graduates from 114 medical schools in the United States. Between 1965 and 1975, the number of first year medical students increased 70% and the number of graduates by 67% (American Medical Association, 1975). This increase in personpower was due to a nearly 30% increase in the number of medical schools (88 to 114) and a tendency to permit larger enrollments. However, projections related to identifying physician surpluses or shortages in the next decade must be examined cautiously because of several factors: 1) distribution of personpower; and 2) increases in the number of foreign physicians.

The literature contains strong arguments on the pros and cons of physician shortages based on the statistics that indicate shortages may be due to poor distribution of personnel (suburban/urban vs. rural) and specialization vs. family practice. These statistics, combined with the population change, have added to the visibility of

a personpower problem in medicine (National Commission for Manpower Policy, 1976).

The foreign trained physician has become one of the mainstays of the American health care system. In 1962, only 1,797 foreign physicians immigrated to the United States. An additional 3,970 were exchange visitors. By the early 1970's, physicians immigrating to the United States totaled more than 7,000 and foreign physicians on temporary visas had increased to more than 4,000 annually. The dramatic impact of this new physician personpower resource in American medicine is revealed in the examination of some comparative statistics. Between 1962 and 1972, there were 97,809 graduates from United States medical schools. During the same period, over 101,000 foreign physicians entered the United States to practice medicine (Lockett & Williams, 1974).

The implications of this data for the DD service system are significant. As the deinstitutionalization movement goes forward, local physicians will be called upon to deal more often with patient disability problems than before. Both American and foreign medical schools provide little of no training in developmental disabilities. Only recently has there been any attempt to develop a program for American trained physicians in dealing with these specialized health problems (Office of Health Professions Education, 1972; W. Frankenburg, 1978). The lack of knowledge about recent developments in habilitation and the array of services available to DD individuals has been the primary reason physicians have continued to recommend institutionalization as a major plan of treatment (Connaughton, 1974; Kelley, 1975).

Dentists

Between 1950 and 1971 active practitioners of dentistry increased from 79,190 to 103, 750 or about 31%. This tended to be just slightly less than the proportionate increase in the nation's population. However, the addition of 10 new dental schools between 1970-1976 is projected to help increase the number of available dentists by about 15%. The geographic distribution pattern seen among physicians, nurses and other key personnel is also seen in dental professionals. Ratios of dentists to population varied from a high in 1973 of 69 per 100,000 persons in New York state to as low as 25 per 100,000 persons in South Carolina. The poor distribution of these human resources suggests that some innovative measures must be adopted to relocate health professionals (American Dental Association, 1971).

Therapists: Occupational, Physical, and Others

Evidence of critical personpower shortages through the '70's and '80's can be found in the literature regarding the role of therapists and special service provider groups in the health care system. The job classifications of occupational therapist (OT), physical therapist (PT), recreation and music therapists, orthotists and prosthetic technicians are of vital concern to administrators and planners of DD-related systems.

By 1980 authorities have projected a need for nearly 18,000 occupational therapists and over 33,000 physical therapists. This would represent a growth rate of 45% over the number of qualified personnel available in 1970 (Pennel & Hoover, 1970). The National Commission for Manpower Policy (1976) found that by mid-1970's the available number of OT and PT workers had increased by only 1%.

Support for the validity of the predicted personpower shortage of therapists can be found in the Michigan Statewide Health Manpower Survey (1977). Based on data for 1975-76, acute care hospitals were 10% understaffed in budgeted full-time employment of occupational and physical therapists, but met OT and PT staffing requirements for budgeted part-time employment. In 1977, the acute care facilities projected budgeted positions for 255 full- and part-time OT's (vs. 95 in 1976) and 331 full- and part-time PT's (vs. 213 in 1976). The budgeted positions reflect a change in administrative policy from seeking full-time therapists to part-time personnel. Full-time positions were reduced approximately 1/3 while part-time positions increased from 15 to 204 for OT's and from 28 to 220 for PT's.

Although one state study in support of a personpower shortage among therapists can hardly be called conclusive, professional journal articles tend to underscore the problem. There appears to be a need for increasing opportunities to train these special therapists. This is reflected in the expansion of recreation therapy now offered in 100 colleges (Park, 1977).

Social Workers

In 1974, approximately 300,000 social workers were employed in human service systems with 12,273 graduates entering the profession each year. This growth rate of 3.4% is substantially higher than the projected growth rate for all American occupations of 2.1%. However, an estimated 35,500 new job openings for social workers is projected through the year 1985. This suggests that even though the ratio of job openings to qualified personnel will be reduced by half (4:1 for 1965-70 vs. 2.3:1 for 1980-85), there will be ample employment

opportunity through the 1980's (United States Department of Health, Education and Welfare, Manpower and Training, 1978).

The literature tends to suggest that one area of social work where additional personnel may be required is the relatively new job title of psychiatric social worker (Gellman, 1973). As in a number of the disciplines previously mentioned, the variation of need by geographic area has produced shortages in many areas and underemployment in others.

Vocational Rehabilitation Counselors

The need for rehabilitation specialists was expected to double between 1973-78, increasing from 300,000 to over 612,000. In order to provide the same degree of service in 1980 as 1973, the number of personnel in the vocational rehabilitation (VR) work force would be required to increase at least 33% to 17,290 (Gellman, 1973). The pool of vocational rehabilitation counselors in 1972 was reported to be 13,000 and in 1974, 17,000 (National Commission on Manpower Policy, 1976). This would place minimal vocational rehabilitation personpower needs, based on Gelman's (1973) prognosis, well ahead of schedule.

A modest 1976 survey of vocational rehabilitation employees would tend to support the theory that there is little evidence of personpower shortage in this field. The survey found the major personpower problem in the field was related to high turnover (United States Department of Health, Education and Welfare, Interstudy Project, 1976).

This problem may be explained by noting that entry position salaries in this field tend to be low and the vast majority of

employees are predominantly young females. As a result, each year 36% of the persons employed in vocational rehabilitation leave the profession for other work or leave the work force entirely (United States Department of Health, Education and Welfare, Manpower and Training, 1978).

Another factor tends to keep the number of vocational rehabilitation counselors entering the market on the low side. The drop-out rate among first year VR students is 75% and at the masters level an additional 25% fail to complete the program (Ibid., p. 25).

A major contribution to personpower literature in vocational rehabilitation is anticipated by 1981 as a product of a 3 year research project begun in 1978 by the Urban Institute. The Institute will be examining pre-service personpower needs, progams and developing conceptual models for personpower forecasting (Ibid.).

If a total commitment were made by our society to habilitate the developmentally disabled population, a substantially greater number of vocational rehabilitation specialists would be needed. In 1973, for example, of the 1,400,000 mentally retarded persons over age 21 identified as job trainable, only 47,800 were habilitated for employment. Despite this small percentage, it should be noted that it represents more than double the number of mentally retarded citizens (21,775) habilitated in 1968 (J. Kaufman, 1973, p. 3).

Speech Pathologists / Audiologists

Although the attrition rate among masters level speech pathology students is 55% (National Institute of Neurologcial and Communicative Disorders and Stroke, 1977), authorities in the speech field predict that the personpower requirements for speech pathologists will be met

by the mid-1980's. At that time, the speech pathology labor pool will number 54,000 compared to 20,000 in 1973 (Ibid., p. 24-25). These findings are in direct conflict with Curlee (1975) who estimated a 300% growth rate was required in speech pathologist personpower to meet the needs of the '80's, in which he foresaw a greater emphasis on research and additional demands for clinical services from industry.

A major personpower shortage of special concern to DD service providers is noted in the area of audiology. Currently, educational resources are producing 1,800 to 2,000 audiologists annually, but the estimated need for these specialists is twice that figure, approximately 4,000 per year. The projected increase through the 1980's is predicated on the hypotheses that learning habilitation in public schools will be placing a greater emphasis on hearing problems than in the past decade (Ibid., p. 17).

Dietician / Nutritionists

One job classification of increasing importance to planners in DD service provider systems is the dietician/nutritionist. Severe malnutrition and dietary imbalances have been shown to effect cognitive development (Springer, 1971). As the 1970's began there were over 41,000 dieticians employed in health care work, but only about 12,000—less than a third--were registered professionals with the American Dieticians Association (ADA) (Pennel & Hoover, 1970). At the same time, it was estimated that there were approximately 852 full-time positions for nutritionists serving the mentally retarded as direct care providers, educators and researchers. Nearly 1/3 of

the 852 positions also required servicing other clients, in addition to mentally retarded clients. Based on an anticipated demand for more dieticians and nutritionists in the general health care system, a shortage of qualified personnel was anticipated to meet the needs of the MR population (Phillips, 1971).

By 1973, the dietician/nutritionist labor pool had increased to nearly 68,000 (National Commission for Manpower Policy, 1976), but the forecast shortage was becoming evident. In Michigan, for example, a state survey revealed only 2 full-time dieticians (1 ADA registered, 1 non-ADA registered) were employed to service 6 institutions for the mentally retarded. Seventeen full-time dieticians (16 ADA registered, 1 non-ADA registered) served 5 institutions for the mentally ill and 135 full-time dieticians (102 ADA registered, 33 non-ADA registered) served 148 acute care facilities. The ratio of meals served per facility to dietician/nutritionist personnel for planning also placed the MR clients at a disadvantage compared to other facilities (Michigan Statewide Health Manpower Survey, 1977).

Despite a reduction in the numbers of persons in custodial institutions providing for mentally retarded persons, a substantial growth in the number of nursing home and group home facilities has continued to increase the demand and potential for qualified dietician/nutritionists. These private facilities are traditionally staffed with personnel performing dietetic/nutritional functions who are non-ADA registered (United States Department of Health, Education and Welfare, Inpatient Health Facilities, 1976; Michigan Statewide Health Manpower Survey, 1977).

Ancillary Personnel

As early as 1970, authorities in the DD provider system were also predicting a personpower shortage in the number of ancillary personnel needed to maintain and upgrade the services, e.g. ward attendants, kitchen help, nurses aides, etc. Attempts to resolve the matter ranged from reclassifying job duties providing greater responsibilities to workers (Krugel & Wolfensberger, 1969) to increasing pay incentives that would attract greater numbers of people. For example, while the national pay check was increased 31.1% during the early 1970's at an annual rate of 5.6%, paraprofessionals in the health care services jumped their salaries 43.4% at a 7.5% annual rate (U.S. Department of Labor, 1974; U.S. Department of Labor, 1976).

The personpower pressure on the DD service system can be put in some perspective by looking at the health care portion of the human service system. By the end of the 1960's claims for paraprofessional shortages ranged from 67% to 100%. In 1967, a total of 2,786,200 persons were employed in the national health care system. Professional judgments at that time forecast a growth of about 34% by 1975, while the Bureau of Labor Statistics estimated a 40% growth potential. The Bureau based its higher projection on their belief that professional classifications would see limited growth, while the sub-baccalaureate positions in allied medicine and nursing services would expand rapidly (Pennel & Hoover, 1970, p. 74).

The findings of the National Commission for Manpower Policy (1976), based on data accumulated in 1973, would tend to support the Bureau of Labor Statistics' predictions. The total persons involved in health care were estimated to be between 4,403,450 and 4,448,250

of which some 910,000 were classified as ancillary or aides. The size of this ancillary labor pool was estimated at about 25% less than desired (paraprofessional population preferred: 1,200,000 by 1975) (Pennel & Hoover, 1970, p. 34).

The explosion in ancillary personnel employment over the past decade has brought an even greater number of women into the health care work force where they have traditionally outnumbered males. While women represent 40%+ of the national work force, in health care services they represent 75% of the employed personnel. The employment surge also attracted heavy representation from minority groups. Minority representation is also greater in the health sector than the economy as a whole (National Commission for Manpower Policy, 1976, p. 21).

Summary of the Literature

There is a noticeable void in the literature specifically addressing personpower planning as it effects the service system for the developmentally disabled. While some studies have been initiated dealing with specific disciplines and job roles, any comprehensive picture of personpower needs affecting DD services must be extrapolated from individual reports or from the general health care system data.

II

CURRENT PERSONPOWER PLANNING ACTIVITIES FOR DEVELOPMENTAL DISABILITIES

This section focuses on identifying groups presently involved in personpower planning for developmental disabilities. Data was collected by literature review and telephone survey. The search identified the following personpower planning researchers: a) Developmental Disabilities Offices; b) Bureau of Education for the Handicapped; c) Federal Personnel Planning agencies; and d) professional associations.

Developmental Disabilities Offices

Through telephone survey, the national, regional, and selected state developmental disabilities offices were contacted. Initial contact was made with the National DD office, followed by contact with ten Health, Education and Welfare (HEW) regional DD offices. Individual state DD planning council offices were contacted when the regional office indicated that the state may be involved in personpower planning activities.

The national DD office reported that it was not aware of any studies assessing resources on which to base personpower projections. They were also unaware of any completed studies that either quantified current or future DD personnel needs or defined an established system for personpower planning. The national office did provide information about certain states and projects which were initiating studies and activities related to personpower for developmental disabilities.

At the regional level, five of the ten regions reported there were no activities currently addressing personpower planning in their region. The remaining five offices indicated that a limited number of personpower planning activities were taking place in their region. Of these only isolated states have subcommittees on their state DD planning councils involved in this area. The majority relied on University Affiliated Programs to conduct personpower planning and development studies in their area. Other states were contracting with public or private educational and research facilities to examine their DD personpower needs.

In the course of the telephone survey, several planning projects were identified. The three projects described below are examples of personpower planning activities conducted by or supported by DD planning groups.

1. HEW REGION V

In HEW Region V the Regional Task Force on Manpower and Training has been established to address DD personpower development needs. The task force is comprised of representatives from state DD planning councils, University Affiliated Programs, Protection and Advocacy Systems, and regional DD projects. The task force is concerned with preservice and inservice personnel preparation and intends to recommend regional training activities for DD personpower development. Their major objective is to establish regional priorities for DD personpower development. Information about the project can be obtained from:

Robert J. Vogt, Director
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Office of Rehabilitation Services
300 So. Wacker Dr. - 15th Floor
Chicago, Illinois 60606
(312) 353-8416

2. MICHIGAN

In Michigan the state DD planning council has initiated a short-term study of DD personnel needs. The project is being conducted by the staff of the planning council. They will focus on DD personnel involved in delivering priority services identified in the state's annual DD service plan. They will conduct an occupational job inventory to determine the specific types of workers needed to provide these services including the examination of the specific skills and training backgrounds that these workers will require to deliver the needed services. The staff will then communicate this information to the appropriate educational facilities in the state. For further information contact:

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Lewis Cass Building, 6th Floor
Lansing, Michigan 48926

3. NEW JERSEY

In New Jersey the state Developmental Disabilities Planning Council has funded the Developmental Disabilities Labor Market Project. The purpose of the project is to examine the present supply and demand for DD personnel including the identification of occupational groups and specific job titles involved in serving the state's DD population. It also requires completing a service needs assessment to measure the client population and classifications of developmentally disabled individuals in the state. This information will be used to project the future supply and demand for DD personnel.

The project is also trying to determine how DD personnel within the state are trained to work with developmentally disabled clients.

Information for the study is being gathered through written questionnaires and personal interviews with state agency staff. The study is being conducted by Rutger's University which has developed two publications on the topic. The following persons can be contacted for additional information:

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Bureau of Education for the Handicapped

The Bureau of Education for the Handicapped (BEH) is in the process of establishing a national and state system to encourage development of cooperative personpower planning programs for special education. These efforts are being initiated to help meet the increased staffing demands created by the "Education for All Handicapped Children Act of 1975, Public Law 94-142." This legislation includes the establishment of a "comprehensive system of personnel development" (Section 613(a)(3), P.L. 94-142). To meet the requirements of this directive, the BEH Division of Personnel Preparation (DPP) developed a plan known as "Cooperative Manpower Planning." Under this plan all state education agencies, universities, and others receiving BEH/DPP Part D grants are required to participate in

development of a state-wide cooperative manpower plan. Through cooperative planning it is believed that more precise projections of personnel needs can be made and better qualified personnel can be prepared.

A national project, the Project on Cooperative Manpower Planning in Special Education was funded by the Division. Its function is to provide technical assistance to states in developing planning committees, programs, data collection efforts, etc. The project has: 1) conducted a national survey to determine the progress states have made in cooperative manpower planning; 2) conducted symposiums on planning; and 3) developed several publications on manpower planning. Further information about the project can be obtained from:

Richard C. Schofer
Project Director
Project on Cooperative Manpower
Planning in Special Education
Department of Special Education
University of Missouri
Columbia, Missouri 65201
(314) 882-3741

BEH has also funded pilot cooperative manpower planning projects in several states to develop planning models. (Bibliography contains annotated references of these pilot projects.)

As a result of the pilot studies, BEH has concluded a single model of cooperative manpower planning for special education cannot fit all states. There are many factors unique to each state that affect the composition of the planning committees, establishing priorities, and data collection. The project recommends that the structure of the state's manpower planning system be determined by the individual factors within the state that influence special educational service (Schofer & McGough, Manpower Planning, 1976).

Federal Personnel Planning Agencies

There are other federal offices that collect data which can be of use to personpower planners for developmental disabilities: the U.S. Department of Labor; the National Center for Health Statistics; the Manpower and Analytic Study Branch of the National Institute of Mental Health; and the National Commission for Manpower Policy.

For example, the Department of Labor, the Health Resource Administration, and the National Commission for Manpower Policy collect data and develop reports related to health education. The Supply of Health Manpower, by the Health Resource Administration (1974) and Employment Impacts of Health Policy Developments, by the National Commission for Manpower Policy (1976), examine personpower needs in the health profession, but do not directly relate to developmental disabilities. The data collection efforts of the Department of Labor are primarily focused on national financial and economic data to predict trends in employment and the gross national product.

Developmental disabilities service and personpower planners will find the data collected by the federal offices previously mentioned not directly applicable in its present form in that it is not specific to the DD service field. However, since these data collection agencies are in contact with many different service progams that may have contact with developmentally disabled clients and have developed methodology for personpower planning that is applicable, DD personpower planners may find the methods and techniques used in gathering this data useful in developing their own personpower programs (Schofer & McGough, Manpower Planning, 1976).

Professional Associations

Some professional associations are involved in personpower planning within the ranks of their own discipline. They have begun addressing personpower needs to improve the role of their profession in providing human services and to more effectively prepare future members to meet client service needs. In the literature review two such studies were identified related to developmental disabilities (Phillips, 1971; National Institute of Neurological and Communicative Disorders and Stroke, 1977).

III

CONCLUSIONS AND RECOMMENDATIONS

Based on the review of the literature and research of current personpower planning activities, there appear to be six critical needs:

1) Developing strategies for improving personpower distribution;
2) upgrading career roles of direct care staff;
3) increasing cooperation between University Affiliated Facilities (UAF's) and state agencies;
4) increasing accessibility of quantitative data related to DD job classifications;
5) improving research methodology for personpower projection; and
6) establising a national network of cooperative personpower planners.

1. Personpower Distribution Strategies

Today only 56% of America's handicapped and elderly live in urban areas (Goodkin, 1977), yet considerably more than 56% of our society's service and support system for these people is found there. The literature contains numerous references to examining personpower from patterns of geographic distribution of resources rather than head counts. Mayo (1970) suggested that many personnel problems may be a dearth of persons applying rather than a lack of persons qualified to apply. The work force tends to gravitate to dollars, benefits and conveniences. When prospective employees are asked to accept poor facilities, long hours, few promotions, inade-

quate retirement, and low pay in the relative isolation of a rural or small town environment, a lack of applications for job openings can be anticipated. Sloan (1975) and the National Commission for Manpower Policy (1976) have suggested personpower problems of nurses and physicians may be geographic as Mayo (1970) proposed.

If members of the DD population residing outside major urban areas are to receive adequate service, alternative solutions must be explored to redistribute the limited personpower pool. This may require innovative exploration of non-monetary incentives, such as immigration and visitor preference for foreign physicians and health care specialists who agree to accept employment for a pre-determined time in a rural or smaller urban market.

2. Upgrading Direct Care Aide Careers

In terms of sheer numbers, the largest segment of the human service system is comprised of direct care ancillary personnel (1976 National Commission for Manpower Policy: 910,000 ancillary personnel). In the early 1970's, the largest group of people working with the mentally retarded were classified as "aides/attendants" who were viewed by the system as having jobs that were "custodial" in nature; such employees were required to have only minimal skills (Zarfas, Louving, & Robbins, 1974). However, the combination of legislation, deinstitutionalization, and inflation has created an urgency within the society to habilitate the developmentally disabled and other handicapped persons seemingly overnight. Practicality demands the greater reliance on the ancillary personnel in this process, unfortunately too often without a long range plan to substantially increase their skill levels or the monetary rewards.

Even though the pay rate for paraprofessionals in health care services rose faster than other segments of the labor force between 1970-74 (U.S. Department of Labor, 1976), inflation rapidly eroded any gains. The Bureau of Labor Statistics reports 1978 dollars purchase 50% of the equivalent value of the 1967 dollar (Detroit Free Press, 1978). This may explain the growth of unions among ancillary staff and the surge in fringe benefit demands that further reduce non-personnel dollars available for services. Management has attempted to meet these demands on personnel by applying better management practices to get more work done with less people (Shoos & Krizelman, 1975).

Since the majority of persons employed in ancillary positions are female, a member of a minority race, high school educated, and from the lower socio-economic strata of our society, hard dollars and practical benefits are a primary attraction. The expansion of new job opportunities in other fields for females and minorities in the 1970's and '80's will undoubtedly impact negatively on the availability of personpower to serve the DD population.

In order to combat this raid on the labor pool of direct care aides, increased efforts should be made to upgrade their job-related skills and responsibilities. Thormalen (1965) found in a California study that direct care aides, lacking adequate training and preparation for their job, not only failed to train the mentally retarded children with whom they worked, but actually further slowed their development by making them more dependent. Studies have shown that paraprofessionals, properly trained, can provide valuable habilitation services in education, social services, and health care (Gartner, 1971; Gartner & Reissman, 1974). Mase (1970) has taken the

health care field, and the DD provider system, to task for wasting mindpower. This is the assignment of persons with bachelor's, master's or doctorate level training to tasks that can be performed by other persons. McPheeters (1973) suggests a new career role of human service generalist will be more fitting than that of aide in the next decade.

The literature in the field of human relations and business management is rich in evidence of non-monetary rewards and incentives for attracting personnel and locking them into the system. The work of Maslow, Hertzberg, Arygis, Likert, Drucker, and others outline non-monetary reward factors. Administrators or planners unfamiliar with their work should consider these factors as they do their planning. Job satisfaction through increasing individual sense of accomplishment, personal recognition from superiors, flex-time work schedules, and other rewards can compensate, at least in part, for a thin paycheck.

3. UAF/State Agency Cooperation

A typical response to personpower problems associated with caring for and habilitating mentally retarded individuals has been to request more money from the federal government. This has fostered what the United States-Canadian Joint Study Group (1970) called the "shotgun approach." Given enough dollars to hire enough bodies, the increased numbers of people will compensate for the lack of quality care. Between 1958 and 1976, over 400 personpower studies were added to the total literature of 40 such studies that existed earlier (Burke, 1976). Most studies indicated a need for more federal funding.

The dramatic growth of health care services and legislative mandates to provide more services for developmentally disabled citizens has created a massive people coordination problem in the provider systems. At times the employment and deployment of personpower resources has been random, ill-directed, and out of tune with service needs.

The need to encourage more realistic and coordinated personpower planning has been recognized by the American Association of University Affiliated Programs (1976). They have recommended a closer relationship be developed between University Affiliated Programs and state service agencies responsible for delivery services to developmentally disabled persons. A liaison of this type could facilitate the identification of personpower needs and goals based upon client needs.

4. Quantitative Data Accessibility

Beauregard and Indik (1976) examined labor market planning literature impacting on developmental disability concerns. They found of 152 reports only 5 contained quantitative analysis based on descriptive or inferential statistics.

The absence of hard personpower data can be a major factor limiting appropriate funding for DD service during the 1980's. A national study of barriers to improving DD service identified the lack of public awareness and the lack of funding as major deterrents (McLin, Akerly, & Ross, 1978). The lack of well-designed quantitative analysis based on empirical research models may impair the ability of DD service providers in health, education, and social services to effectively argue for increased support for personpower, at the federal, state and community levels.

As available dollars shrink at all levels in the struggle against inflation, hard data becomes the invaluable tool of persons concerned with justifying expanded resources and services.

5. Research Methodology

The problem of collecting accurate data about personpower needs related to DD concerns is not new. The United States-Canadian Joint Study Group (1970) attributed the lack of hard data to an inability to select priorities for the future. In addition to a scarcity of studies with quantitative data, the most prevalent methodology used in personpower planning has been that of linear progression. Researchers have traditionally criticized this fixed methodology for projecting personpower. The reasons are based on linear methodology's failure to consider external factors, ranging from sociological to economic concerns (Lewis, 1973; Curlee, 1975; Crowley, 1973; Blozen & Hass, 1974; Goldfarb, 1975).

The lack of sophisticated methodology to accurately forecast staffing requirements is demonstrated by the admission of the Department of Health, Education, and Welfare that "We do not have data and the know-how to forecast manpower, staffing and training needs" (United States Department of Health, Education and Welfare, A Study of Manpower and Training Issues, 1978).

Regarding approaches to gaining support for DD service improvement, Crowley (1973) has bluntly pointed out that instead of examining needs in the field, it is more realistic to look at what the taxpayers are willing to pay for and what will work.

One effective approach is to include local experts in provider services on any personpower planning project. Input about local

trends in employment, training, service requirements, management policies, politics, and other factors influencing the labor pool can be imperative to sensible planning. State and local agency directors/personnel can be recruited for this activity. Even in the absence of detailed statistical projections, Lewis (1974) has found that planning groups can develop effective priority action models when they employ this strategy of utilizing local resource persons as their information base.

6. Personpower Planning Network

Long range personpower analysis, planning, and action cannot become a reality until a "network" of personpower investigators is established, which includes federal, state, local, private, and public groups. Educational resources, such as universities, university affiliated facilities, and community colleges, are uniquely equipped to assist in this activity by coordinating and sharing their research and forecasting capabilities. The need for this action is underscored by the lack of DD-specific personpower literature, incorporating quantitative data.

Establishing a national personpower-oriented network, coordinated perhaps by the national DD office and dedicated to DD concerns, can be an important step forward in protecting the interests of both provider and client. It can produce meaningful data that will assist in attracting support, both in interest and in dollars, for expansion of human services. This network can also save institutions, private researchers, and taxpayers valuable dollars by: 1) reducing needless duplication of research; 2) eliminating duplicated or unnecessary training programs for personnel; 3) preventing inadequate, misdi-

rected research; and 4) developing more meaningful curricula and staff development training priorities to meet specialized DD client needs.

Although the Bureau for the Education of the Handicapped has recommended that each state determine its own unique personpower needs (Schofer & McGough, Manpower Planning, 1976), a network or forum to encourage exchange of information, research technology, and hard data is critical to this effort.

If intelligent personpower planning and development for service to the DD population is to occur, it must put together the hard data required to make intelligent decisions about the system's future. The gains of the '60's can be lost in the '70's simply because we lack the ability to forecast personpower needs effectively and efficiently.

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Selected Annotations

GENERAL ISSUES

Beauregard, Robert A. and Indik, Bernard P., Labor Market Planning to Serve The Developmentally Disabled: A Literature Review and Bibliography, Rutgers University, New Jersey, December, 1976.

The literature review, with its bibliography, is an excellent summary of the problems and prospects for labor market planning to serve people with developmental disabilities. Its purpose is to serve as a starting point for actual analysis and subsequent policy recommendations concerning this very diverse job market.

Cohen, Julius S. ed. "Manpower and Mental Retardation: An Exploration of Issues" Proceedings of the Banff International Conference. Washington, D.C. Government Printing Office, 1970.

The proceedings of this historic conference presents the reader with brief summaries of the conference discussions and keynote addresses. It explores the various issues involved in manpower training for mental retardation. The three major themes of the conference were problems in training program development, training basic and supportive personnel, and inter-university and international relationships. The proceedings are concluded with a list of conference participants.

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The publication is a compilation of position papers, workshop topics, and summaries of workshop discussions that comprised the Temple University Conference. From their various perspectives consumer advocates, labor analysts, and program administrators discuss the issues and forces involved in making manpower projections for the developmental disabilities.

Pickett, Anna Lou. The Utilization and Training of Paraprofessionals in Special Education: Results of a Survey of State Directors of Special Education and Descriptions of Training Programs. New York, New York. New Careers Training Laboratory, Center for Advanced Study in Education, Graduate School and University Center of the City University of New York, 1977.

A descriptive and statistical review of paraprofessional growth in numbers and responsibilities, this study compares data with information generated by a similar study in 1974. The document also looks at future prospects for employment and some of the programs for paraprofessional training in special education.

Project Continuing Education For Health Manpower, Fostering The Growing Need To Learn: Monographs and Annotated Bibliography on Continuing Education and Health Manpower 1974. Syracuse University, Syracuse, New York, 1973. (available from: Division of Medical Programs, Room 11A-21, Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20852.)

This is a study of continuing education activities by leaders in health manpower education and adult learning. The monographs and annotated bibliography are intended to aid decision-makers in the health care field in developing and utilizing health manpower to improve the quality of health care. This reference guide analyzes and proposes approaches to continuing education and enables decision-makers to avoid traditional pitfalls, advance successful efforts, and encourage innovations.

Schofer, Richard C. and McGough, Robert L. Cooperative Manpower Planning: Annotated Bibliography, University of Missouri-Columbia, October, 1976.

This is a comprehensive annotated bibliography of available literature pertaining to manpower planning. It divides and categorizes the literature into 14 sections to facilitate its access. The bibliography is intended to be of assistance to those involved in cooperative manpower planning.

Schofer, Richard C. and McGough, Robert L. Cooperative Manpower Planning in Special Education: First Missouri Symosium, May, 1976, University of Missouri-Columbia, May, 1976.

Contained in this document are reports on symposium discussions, reports on state cooperative manpower planning activities, and results of a literature review. This document provides helpful information for those involved in manpower planning concerning approaches to consider, components to utilize, and strategies for implementation.

Schofer, Richard C. and McGough, Robert L. Statewide Cooperative Manpower Planning in Special Education: A Status Study, Department of Special Education, University of Missouri-Columbia, November, 1976.

This report documents the results of a nationwide investigation into the current progress and direction of manpower planning efforts in special education. The investigation examined how, and to what extent, the various states were responding to the "BEH Directive" for manpower planning in special education. The report provides recommendations relating to the implementation of cooperative manpower planning.

Springer, Ninfa Saturnino, ed. Proceedings of the Conference on Nutrition and Mental Retardation, University of Michigan, Institute for the Study of Mental Retardation and Related Disabilities, 1971.

The conference, planned primarily for nutritionists and dieticians, dealt with the role of nutrition in the prevention and management of mental retardation. Proceedings include an examination of nutrition manpower needs in the fields of mental health and mental retardation on both the national and state levels and a discussion of nutrition and learning in children. The final paper describes the role and activities of nutritionists in University Affiliated Centers. (KW)

University of North Carolina. Training of Personnel to Serve Children with Special Needs: A Report from the Cooperative Planning Consortium of Special Education in the University of North Carolina. Frank Porter Graham Center, Chapel Hill, North Carolina, 1974.

Reviewed are current higher education resources in North Carolina for training special educators, school psychologists, and speech and hearing specialists who serve handicapped children. It is explained that current resources were found to be inadequate when compared with projected needs for preservice training of new personnel and for inservice training to upgrade the qualifications of existing staff members. Recommendations are offered for augmenting existing training resources, for meeting future needs for increased personnel, and for initiating a field based education system to assist public schools and agencies in upgrading and certifying current personnel. Appendixes include data on active and developing training programs at the University of North Carolina and at private institutions of higher learning within the state.

U.S., Department of Health, Education, and Welfare. Health Resource Administration. Health Manpower References. The Supply of Health Manpower: 1970 Profiles and Projections to 1990. Washington, D.C.: Government Printing Office, 1974 (stock #1741-00081).

This report provides descriptive profiles of the current and past supply of health manpower and projections of manpower supply to 1990. It presents detailed descriptions of the methodology and techniques used to derive the profiles and projections, and provides interpretations and evaluations of the adequacy and comparability of existing statistics, with descriptions of the more conspicuous gaps in the current health manpower information system. The health manpower occupations covered are the major health professional categories, including a number of specialties within these categories and selected groups of allied health professions and occupations.

U.S. Department of Health, Education and Welfare. Staffing of Mental Health Facilities: United States 1974, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 1975.

A descriptive data report on the number of staff positions and hours worked in a sampling of the professional and paraprofessional personnel employed in American mental health facilities during a one week period in January, 1974. No projections or conclusions are offered in the report. It serves only as descriptive data from which others may interpolate findings.

PERSONPOWER PROJECTIONS

Balow, Bruce, "Teachers for the Handicapped," Compact, 5(4), August, 1971, 43-46.

The lack of highly skilled teachers and related educational personnel for teaching the handicapped is examined. In view of the U.S. Commissioner of Education's expressed national commitment to assure adequate education for all handicapped children by 1980, a recent survey finds that less than half of the U.S. school districts now provide specialized programs for handicapped children. It is pointed out that in order to fulfill the national commitment, 300,000 additional teachers of the handicapped are needed immediately. Although special education needs are shown to increase faster than federal monies, representative results of grant programming by the Bureau of Education for the Handicapped are mentioned as evidence that advances are being made in improving quality of teachers, in using more efficient and more effective training models, and in reaching handicapped persons not served previously. The absence of coordinated planning between state education agencies and institutions of higher education is cited as a reason for the existing lack of sufficient special education teachers. It is also pointed out that limited attention goes to manpower preparation for the most seriously handicapped children. Potential manpower sources are suggested and finally, special support services for handicapped children in regular classrooms are thought to be more beneficial in the long run than traditional segregated classes. (CB)

Bensberg, Gerard J. "Job Families in Mental Retardation," The Community College in Mental Health Training, National Institute of Mental Health, Bethesda, Maryland, April, 1966, pp. 59-62.

The dilemma of an increasing need for educational and training programs for the mentally retarded and an increasing shortage of well qualified teachers lead to consideration of more efficient teaching methods or a greater manpower pool. Three jobs are explained in which personnel work under the supervision of a fully qualified person--teaching assistants in educable mentally retarded classes (not aides), trainable class teachers, and behavior shaping technicians. Additional needs could be met by training personnel for the development and coordination of community programs. Jobs that might be filled by persons with 2 years of college and practicum training are those of executive directors of associations for retarded children, mental retardation referral clinic workers, and homemaker service directors.

Clark, Gary M. and Oliverson, Barbara S. "Education of Secondary Personnel: Assumptions and Preliminary Data," Exceptional Children, 39(7), 541-546.

Administrators of mental retardation programs in 50 state departments of education (47 responded) were surveyed to obtain data on manpower needs of secondary level special education programs, certification requirements, teacher education programs for elementary and secondary level personnel, priorities in teacher education, and the extent of mandated special education legislation. Responses indicated that more secondary level personnel were needed, that state certification practices have not kept pace with the growth of secondary special education programs, and that there was a need for different preparatory programs for secondary classroom teachers and work-study coordinators. Survey returns also showed that state department respondents had definite preferences concerning the type of education desired for secondary level personnel and that mandatory legislation for special education was an accomplished fact in 41 of the 47 states for which data were available.

Connaughton, Mary Carole, "Physician's Understanding of Mental Retardation and their Advice to Parents of Mentally Retarded Children," Dissertation Abstracts International, 35A (H): 2080, Indiana University-Bloomington, 1974 (Order No. 74-22, 760).

Obstetricians and general practitioners were found to be uninformed or misinformed about the child with Down's Syndrome, the type of services provided by the average state institution, and about the availability of various resources and services within the state which could be helpful to the child and his family. Suggestions as to the amelioration of the situation are offered.

Curlee, Richard F. "Manpower Resources and Needs in Speech Pathology/Audiology," Journal of the American Speech and Hearing Association, 17(4), 265-273.

Reported are results of a study and the utilization, distribution, and future needs for speech pathologists and audiologists in research, teaching and clinical care. Explained are sources of data for the study such as questionnaires sent to professionals and statistics from the Bureau of Education for the Handicapped. Described are characteristics of the current speech and hearing work force, and of students in training. Projected needs for speech pathologists and audiologists to provide clinical services and teach are compared to three estimates of future manpower supply. It is explained that attempts to develop appropriate models for research needs were unsatisfactory.

Kelley, Karen, "Physican's Awareness and Attitudes Toward the Retarded," Mental Retardation, 13(6), 1975, 10-13.

Results of a survey of pediatrician's and general practitioner's awareness of community-based services and practices

regarding referral to local services are presented. Over three-quarters of the physicians sometimes recommended institutionalization for moderately mentally retarded patients. Local agencies should take immediate steps to increase physician awareness of their services, and medical schools should increase training related to management of mentally retarded patients.

Pennell, Maryland Y. and Hoover, David B. Health Manpower Source Book 21: Allied Health Manpower Supply and Requirements: 1950-80, U.S. Department of H.E.W., Public Health Service - National Institute of Health, Bureau of Health Profession Education and Manpower Training, Bethesda, Maryland, 1970.

An overview of personnel projections and shortages in personpower within the Allied Health Professions by 1980. Numbers of personnel needed by educational level are also cited.

PLANNING MODELS

Blozan, Carl F. and Hass, Arthur E. Jr. Development and Application of a Manpower Career Flow Model of Speech Education Teachers. RMC, Inc., Bethesda, Maryland, 1974. (ED093098).

Described for federal and state policymakers is an analytic model of special education (SE) manpower incorporating questionnaire data from 1,173 SE students and 2,068 SE teachers. The model is reported to encompass the following 13 states or definable conditions: undergraduate training five states each for undergraduate and masters degree levels consisting of full-time teacher in SE, full-time teacher in SE and part-time school attendance for a higher degree, full-time student, out of SE and part-time student, and out of SE and no school attendance; and two states (in or out of the SE field) at the post-masters degree level. Methodology is given to include categorization of students by the three educational levels according to the specialty areas of sensory disorders, learning disorders, and other specialties; and categorization of teachers on bases such as representation from 26 states and school districts. Noted is use of career data such as length of time in jobs and nature of current position. Analysis of version I (state probabilities) involving matrix computation in explained through results indicating that of 128 female teachers specializing in sensory disorders, 48 teach full-time with an undergraduate degree, 49 teach with a masters degree, one teacher in the field has a doctorate, four teachers are in school full-time, and four teachers have left the field. Explained is analysis by version II (incorporating time in state) involving ways to interpret movement of teachers in the field. Given are examples of model operations such as projecting the current states ahead for 1 year.

Linton, Thomas E. Towards a National Mental Retardation Manpower Model for Canada. College of Education, Illinois University, Chicago, Illinois, 1971.

The stated need for developing a national mental retardation manpower model for Canada is not the manpower shortages in mental retardation, but the unsound conceptual and functional approaches to the socialization and education of the mentally retarded. The report is divided into the four major training programs available for associate professionals and volunteer personnel includes preschool, home care, residential, and occupational vocational programs. The second section on recommending a training curriculum for associate professionals clarifies four diploma levels. Recommending improved methods for utilizing personnel in the field of mental retardation and allied developmental handicaps constitutes the third section. Topics covered are general rationale, implementation methods, programs for new workers and present staff members, professionals, and programs for volunteers. The fifth section consists of recommending a pattern of implementation indicating specific roles and responsibilities of local, provincial, and national agencies. A summary of recommendations concludes the report.

Mintz, Raymond D. and others. Study of the Need for Educational Manpower for Handicapped Children and Youth: Phase III Report. Final Report. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052582)

In the Phase III portion of the Study of the Need for Educational Manpower for Handicapped Children and Youth, motivational factors affecting special education manpower supply and the impact of PL 85-926 on the supply were evaluated in two studies for which separate questionnaires were developed: the Personal Motivation Study and the University Impact Study. The questionnaire concerning motivation factors causing people to enter, remain in, and leave special education was sent to personnel in the field, while the questionnaire concerning the effect of PL 85-926 funding on university special education programs was sent to universities offering programs for training personnel in the education of the handicapped. Results of the surveys demonstrated positive effects of PL 85-926 in all respects. It increased the capacity of universities receiving funds to supply manpower, and improved the quality as well as the quantity of graduating students. Attrition from the field was less among students receiving grants than among others. The relevancy of working with handicapped children to personal and social values attracted many students, but many had unrealistic images of time and energy commitment required or objected to training requirements for certification, pay, and working conditions.

Mintz, Raymond D. and others. Study of the Need for Educational Manpower for Handicapped Children and Youth: Part A--Phase III. Final Report. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052583)

Phase III of the Study of the Need for Educational Manpower for Handicapped Children and Youth, in demonstrating the feasibility of the Manpower Requirements Projection Model (MRPM), gathered data in the states necessary for implementation of the

model. The MRPM was developed to enble state or local administrators of special education to estimate manpower needs and handicapped child population. The 50 state special education agencies were surveyed concerning the flow and utilization of special education information and their capability to utilize the model. It was found that few states had special education information systems capable of providing predictive as well as evaluative data, and in few states did data on handicapped children include all sources of education. It was concluded that, despite some obstacles to automating special education data processing, states had the annual data cycles in most cases; availability of information flow capable of providing required input was a major factor affecting implementation. Appended are extensive state data summaries (personnel data and special education enrollment) and information flow implementation and maintenance cost estimates for each state.

Mintz, Raymond D. and others. Study of the Need for Educational Manpower for Handicapped Children and Youth: Parts B and C--Phase III. Final Report. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052584)

The document contains Parts B and C of the report on the Manpower Requirements Projection Model (MRPM) validation study and state surveys (see EC 032 848), which formed Phase III of the Study of the Need for Educational Manpower for Handicapped Children and Youth. Prepared primarily for use by persons responsible for the management and administration of state special education agencies, Part B provides a non-technical description of the purpose and use of the MRPM. Guidelines for the preparation of input data for, and analysis of output reports from, the model are given. In Part C, intended for the technically oriented user of the MRPM, technical details necessary for understanding the model formulations and the related parts of the computer programs and provided. The MRPM was developed to enable state or local administrators to estimate manpower requirements and handicapped child populations.

Mintz, Raymond D. and others. Study of the Need for Educational Manpower for Handicapped Children and Youth: Part D--Vol. 1, Phase III, State Analysis Reports. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052585)

The document is the first of three volumes of the State Analysis Reports resulting from Phase III of the Study of the Need for Educational Manpower for Handicapped Children and Youth, which involved a validation study and state surveys related to the Manpower Requirements Projection Model (MRPM). Included in the volume are individual reports on special education information flow in states in alphabetical order from Alabama through Kansas. Recommendations made for each state provide guidance for developing an information flow that will enable that state to utilize the MRPM and improve the availability of information for other special education management functions.

Mintz, Raymond D. and others. Study for the Need of Educational Manpower for Handicapped Children and Youth: Part D, Volume II, Phase III. State Analysis Reports. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052586)

The document is the second of three volumes of the State Analysis Reports resulting from Phase III of the Study of the Need for Educational Manpower for Handicapped Children and Youth, which involved a validation study and state surveys related to the Manpower Requirements Projection Model (MRPM). Included in this volume are individual reports on special education information flow in states in alphabetical order from Kentucky through North Carolina. Recommendations made for each state provide guidance for developing an information flow that will enable that state to utilize the MRPM and improve the availability of information for other special education management functions.

Mintz, Raymond D. and others. Study of the Need for Educational Manpower for Handicapped Children and Youth: Part D--Volume III, Phase III. State Analysis Reports. Operations Research, Inc., Silver Springs, Maryland, 1970. (ED052587)

Similar data to other study by Mintz and and associates, but instead of discussing data flow from Kentucky through North Carolina, this document deals with data flow, in alphabetical order, from North Dakota through Wyoming.

National Institute on Mental Retardation. A National Mental Retardation Manpower Model, Ontario, Canada, 1971.

The report of the Task Force established by the Canadian National Institute on Mental Retardation concerns a comprehensive planning and organization program for training personnel, especially associative professionals, in the field of mental retardation to provide a more effective utilization of manpower. Summarized are results of surveys of existing training programs available for professional, associate professional, and volunteer personnel, including preschool, home care, residential, and occupational-vocational training programs. A training curriculum for associate professionals at four diploma levels is detailed. Improved methods for utilizing all personnel in the field of mental retardation and allied developmental handicaps are recommended, as is a pattern of implementation indicating the specific roles and responsibilities of local, provincial, and national agencies and institutions. A total of 38 recommendations related to manpower training and utilization are presented.

Santa Cruz County Superintendent of Schools. A Guide for the Management of Special Education Programs, Santa Cruz, California, Santa Cruz County Schools, 1972. (ED070218)

The seventh document in an eight part series on a task based management system for special education programs reported the goals and objectives of the project, evaluation techniques employed, and project recommendations and conclusions. The

project's stated goal was the development of a process for managing special education resources (staff, facilities, materials, equipment, time, and money) in a way consistent with pupil needs. Final objectives of the project focused upon three areas of program development: determing and predicting manpower needs and resource requirements, defining detailed job descriptions for all program staff based upon learner objectives, and modifying inservice programs to be consistent with the responsibilities of each staff member. Functions of the advisory committee and the audit and evaluation teams were recounted. Research oriented tasks identified during the project's first 2 years were recommended.

Schofer, Richard C. and McGough, Robert L. Manpower Planning for Special Education: Planning Models and Alternatives, University of Missouri-Columbia, October, 1976.

This document provides an overall process model for cooperative manpower planning for special education. It lists and discusses the phases of planning that occur. The document provides suggestions and alternatives which have been demonstrated by various manpower planning committees to be both effective and reasonable in application. A bibliography is also included.